

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today
 (1) was not written for publication in a law journal and
 (2) is not binding precedent of the Board.

Paper No. 10

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
 AND INTERFERENCES

MAILED

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Ex parte RICHARD F. SANTOPIETRO

PAT. & T.M. OFFICE
 BOARD OF PATENT APPEALS
 AND INTERFERENCES

Appeal No. 96-0940
 Application 08/236,857¹

ON BRIEF

Before McCANDLEISH, Senior Administrative Patent Judge, and
 FRANKFORT and NASE, Administrative Patent Judges.

FRANKFORT, Administrative Patent Judge.

¹ Application for patent filed May 2, 1994.

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DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 through 18, which are all of the claims pending in this application.

Appellant's invention relates to a system for monitoring sea state at the surface from a submerged vessel such as a submarine without requiring use of a floating buoy at the surface of the sea. The system comprises a towed buoy (16) that is tethered to a submarine (10) and which is maintained at a selected distance (D) below the surface of the sea. The cable (14) tethering the buoy to the submarine also includes command and data transmission channels for controlling and monitoring the attitude and/or location of the buoy below the ocean surface. Fins (26) on the buoy are operated to control the attitude of the towed buoy so as to maintain the buoy at the desired depth (D). As noted on page 4 of the specification, the positions of these fins as they are so operated are monitored by transducers (e.g., 28) so as to provide continuous information, along with information from the buoy motion sensor (32), that can be translated via control means (22) on the submarine into information providing an indication of the sea state at the surface. The system also

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includes means for monitoring variations in both cable tension and the angle of the cable relative to the longitudinal axis of the buoy for purposes of providing an indication of surface currents and eddies. Claims 1, 3, 4, 5 and 6 are representative of the subject matter on appeal and a copy of those claims is attached to this decision.²

The prior art references of record relied upon by the examiner as evidence of obviousness under 35 U.S.C. § 103 are:

Aschinger ('757)	3,024,757	Mar. 13, 1962
Aschinger ('471)	3,034,471	May 15, 1962
Spink et al. (Spink)	3,560,912	Feb. 2, 1971

Claims 1 through 18 stand rejected under 35 U.S.C. § 103 as being unpatentable over Aschinger ('757 and '471) in view of Spink. According to the examiner (answer, pages 3-4),

² While the examiner has indicated in the answer (page 2) that the copy of the claims contained in the Appendix to appellant's brief "is correct," we note that there are several errors which warrant clarification. In claim 1, line 8, "aboarsaid" should be ---aboard said---, and "for" in line 16 of claim 1 should be deleted. More significantly, the dependency of claims 15 and 16 in the Appendix to the brief is in error. The record reveals that both of these claims are correctly dependent from ---claim 10--- and not from "claim 16" and "claim 17" as respectively indicated in the copy of such claims in the Appendix.

[t]he patents to Aschinger disclose a system wherein a submarine (2) tows an underwater buoy (1) by a cable means (3). The buoy includes movable fins (5, 6) and fin actuating means (see Fig. 4) to change the pitch of the buoy relative to its longitudinal axis.

A difference between claims 1 and 10 and the system disclosed in Aschinger lies in the mechanism for maintaining a predetermined depth for the buoy. More specifically, the claims include a control means including a depth sensor which provides depth data to the control means which then generates command signals to the fin actuating means to continuously seek a predetermined depth below the surface of the sea. The Aschinger system does not contemplate maintaining the buoy at a predetermined depth. A further difference is the claims specify a buoy motion sensor means and a fin motion sensor means.

The patent to Spink et al teaches that in data sensing and gathering operations using cable towed underwater vehicles, it is often desired to maintain the towed vehicle at a constant distance from the surface. To this end, Spink et al proposes a control system that includes a depth sensor and control circuit which utilizes the data from the depth sensor to maintain the vehicle at a predetermined or constant depth below the surface. Note that the Spink et al system also includes a pitch rate sensor and tachometer that are functionally equivalent to the claimed buoy motion sensor means and fin motion sensor means, respectively.

Thus, in view of Spink et al, it would have been obvious to one of ordinary skill in this art to have modified the system disclosed in Aschinger by including a control means (depth sensor and control circuit) for maintaining the buoy (1) at a predetermined depth below the surface since such constant

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depth is desired in data sensing and gathering. To have further included buoy motion sensors and fin motion sensors would have been an obvious expedient to a skilled artisan especially in view of Spink et al. Claims 1 and 10 are so rejected.

Dependent claims 2-9 and 11-18 are further provided by or obvious over the combination of the above patents.

Rather than reiterate the conflicting viewpoints advanced by the examiner and appellant regarding the § 103 rejection, we make reference to the examiner's answer (Paper No. 9, mailed August 29, 1995) for the examiner's complete reasoning in support of the rejection, and to appellant's brief (Paper No. 8, filed August 9, 1995) for appellant's arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to appellant's specification and claims, to the applied prior art references, and to the respective positions articulated by appellant and the examiner. As a consequence of our review, we make the determinations which follow.

Like the examiner, based on our review of the combined teachings of the applied patents, we are of the opinion that it

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would have been obvious to one of ordinary skill in the art at the time of appellant's invention to provide the submarine towed underwater buoy arrangement of the Aschinger patents with a control system like that of Spink so as to facilitate maintaining the buoy at a predetermined constant depth below the sea surface, as is taught in Spink. We observe that appellant does not contend otherwise.

Instead, it is appellant's position that the cited prior art does not show, teach or suggest a control system which tracks the motion of the fins on a towed subsurface buoy to provide feedback to the buoy so as to not only maintain a constant depth below the surface, but to also provide an indication of sea state parameters at the surface itself. Appellant urges that the applied references contain no suggestion of the problem to which appellant's claimed subject matter is presented as a solution, and provides no suggestion or motivation for monitoring the fin positions of an underwater towed buoy for purposes of analyzing sea state (i.e, wave action, ocean currents, etc.). From appellant's perspective, any suggestion of utilizing the physical motion of fins on an underwater towed vehicle, such as a buoy of the type claimed, for providing an output that is

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indicative of sea state conditions at the surface would never be contemplated by reference to the prior art cited by the examiner without hindsight benefit of the invention disclosed and claimed by appellant.

While we share appellant's view on the shortcomings of the prior art references applied by the examiner, we note that independent claims 1 and 10 on appeal each define a system "for measuring sea state from a submarine," but do not otherwise include limitations relating the claimed structure to the statement of purpose or use in the preamble. In this regard, it is our determination that the collective teachings of the Aschinger patents and Spink as combined by the examiner meet the structural limitations of appellant's independent claims 1 and 10, and that any difference resides strictly in the particular manner in which appellant's "system" is intended to be used. We again observe that appellant does not contend otherwise.

Turning to appellant's functional claim language "for measuring sea state from a submarine" found in the preamble of claims 1 and 10, we note that there is nothing in the body of independent claims 1 and 10 which makes the "system" as claimed

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uniquely limited in use to determining or measuring sea state, and further point out that the combined teachings of the references applied by the examiner render obvious the "system" as claimed but teach use of that "system" for the purpose of maintaining a towed underwater buoy at a constant depth below the surface of the sea. Thus, since it is well settled that the particular manner in which a device is used cannot be relied on to distinguish structure from the prior art (See, for example, In re Spada, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657-58 (Fed. Cir. 1990); In re Yanush, 477 F.2d 958, 959, 177 USPQ 705, 706 (CCPA 1973); In re Casey, 370 F.2d 576, 580, 152 USPQ 235, 238 (CCPA 1967) and Ex parte Masham, 2 USPQ2d 1647, 1648 (Bd. Pat. App. & Int. 1987)), we agree with the examiner that the "system" defined by appellant in independent claims 1 and 10 would have been obvious to one of ordinary skill in the art within the meaning of 35 U.S.C. § 103 based on the collective teachings of the Aschinger patents ('757 and '471) and Spink. The examiner's rejection of appellant's claims 1 and 10 under 35 U.S.C. § 103 is therefore sustained.

Claims 2 and 7 which depend from claim 1, and claims 14 through 18 which depend from claim 10, have not been separately argued by appellant as required in 37 CFR § 1.192(c)(7) and

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(8)(iv). Accordingly, we have determined that these claims must be treated as falling with their respective independent claim. See In re Nielson, 816 F.2d 1567, 1572, 2 USPQ2d 1525, 1528 (Fed. Cir. 1987). Thus, it follows that the examiner's rejection of claims 2, 7 and 14 through 18 is also sustained.

Turning to dependent claim 3, we note that this claim adds to claim 1 that the "system" thereof be further characterized by "means for evaluating variations in fin position to provide indication of sea state parameters." Dependent claim 4 sets forth that the "system" of claim 1 further includes "means for comparing any variations in buoy motion to reference motions for known sea conditions." Dependent claims 11 and 12 add similar limitations to the "system" of independent claim 10. As has been argued by appellant, the prior art relied upon by the examiner does not disclose, teach, or suggest "means" such as those set forth in claims 3, 4, 11 and 12, and does not even hint at any relationship between fin positional changes, or variation of buoy motion, and sea state parameters. Thus, we fail to see how the prior art applied by the examiner would have made obvious to the person of ordinary skill in the art that which is claimed by appellant in claims 3, 4, 11 and 12. Regarding claims 5, 8

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and 9, we note that these claims depend, either directly or indirectly, from claim 4 and thus, like claim 4, would not have been obvious to one of ordinary skill in the art based on the applied Aschinger and Spink patents.

Dependent claim 6 sets forth that the "system" of claim 1 is further characterized by cable tension measuring means and "means for comparing variations in cable tension to a reference tension value selected from a table of various tension values that vary according to sea state parameters." Dependent claim 13 sets forth a similar limitation on the "system" of independent claim 10. As was the case with regard to claims 3, 4, 11 and 12 above, we find nothing in the prior art relied upon by the examiner which discloses, teaches, or suggests "means" such as those set forth in claims 6 and 13 on appeal directed at comparing variations in cable tension to reference tension values that vary according to sea state parameters so as to obtain an indication of the sea state parameters at the surface. We note again that the Aschinger patents and Spink do not even hint at any relationship between fin positional changes, variation of buoy motion, or cable tension, and sea state parameters at the surface. Thus, we fail to see how the prior art applied by the

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examiner would have made obvious to the person of ordinary skill in the art that which is claimed by appellant in claims 6 and 13.

The examiner's position (answer, page 5) that indication of sea state parameters "would be an inherent outcome of the modified Aschinger system," is in our opinion without merit. Even though it appears true that sea state parameters at the surface would affect the subsurface buoy motion and thus fin motion used to maintain the buoy of the modified Aschinger system at the desired constant depth, the applied references provide no recognition of any relationship between buoy motion or fin motion and sea state parameters at the surface, provide no means for comparing the buoy motion or fin motion to reference values for such motions for known sea conditions, and provide no means for evaluating variations in the buoy motion or fin motion to provide indications of sea state parameters. Thus, an indication of sea state parameters at the surface cannot be said to be a natural result flowing from the operation of the modified Aschinger system as taught, and the various "means" recited in claims 3 through 6, 8, 9 and 11 through 13 on appeal cannot be said to be inevitably present in the modified Aschinger system. See, for example, In re Oelrich, 666 F.2d 578, 581, 212 USPQ 323, 326

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(CCPA 1981). Since appellant's invention as defined in claims 3 through 6, 8, 9 and 11 through 13 and as argued in appellant's brief would not have been obvious to one of ordinary skill in the art within the meaning of 35 U.S.C. § 103 based on the applied references, we will not sustain the examiner's rejection of these claims.

Under the provisions of 37 CFR § 1.196(b), a new rejection of appealed claims 9 and 16 through 18 under 35 U.S.C. § 112, second paragraph, is being added to this decision.

Claims 9 and 16 through 18 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which appellant regards as the invention. The subject matter of claims 9, 16 and 18 is vague and indefinite due to the fact that the language "said coupling means" used in these claims has no clear antecedent basis. Since claim 17 is dependent from claim 16, it too suffers from the same ambiguity.

To summarize our decision, the examiner's rejection of claims 1 through 18 under 35 U.S.C. § 103 has been affirmed

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with regard to claims 1, 2, 7, 10 and 14 through 18, but has been reversed with regard to claims 3 through 6, 8, 9 and 11 through 13. In addition, we have added, pursuant to 37 CFR § 1.196(b), a new rejection of claims 9 and 16 through 18 under 35 U.S.C. § 112, second paragraph.

The decision of the examiner is affirmed-in-part.

Any request for reconsideration or modification of this decision by the Board of Patent Appeals and Interferences based upon the same record must be filed within one month from the date hereof (37 CFR § 1.197).

With respect to the new rejection under 37 CFR § 1.196(b), should appellant elect the alternate option under that rule to prosecute further before the Primary Examiner by way of amendment or showing of facts, or both, not previously of record, a shortened statutory period for making such response is hereby set to expire two months from the date of this decision. In the event appellant elects this alternate option, in order to preserve the right to seek review under 35 U.S.C. §§ 141 or 145 with respect to the affirmed rejection, the effective date of the

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affirmance is deferred until conclusion of the prosecution before the examiner unless, as a mere incident to the limited prosecution, the affirmed rejection is overcome.

If the appellant elects prosecution before the examiner and this does not result in allowance of the application, abandonment or a second appeal, this case should be returned to us for final action on the affirmed rejection, including any timely request for reconsideration thereof.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART, 37 CFR 1.196(b)

HARRISON E. McCANDLISH
Senior Administrative Patent Judge

Charles E. Frankfort
CHARLES E. FRANKFORT
Administrative Patent Judge

Jeffrey V. Nase
JEFFREY V. NASE
Administrative Patent Judge

BOARD OF PATENT
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APPENDED CLAIMS

1. A system for measuring sea state from a submarine comprising:

an underwater or subsurface buoy;

cable means for towing said buoy from the submarine and including command and data communication channels between the submarine and said buoy;

buoy motion sensor means including first transducer means aboard said buoy for sensing buoy motion including position, velocity and acceleration in three dimensions;

said buoy having movable fins to provide the towed buoy with at least pitch change capability;

fin actuated means for moving said fins to change the pitch of said buoy relative at least to its longitudinal axis;

control means including second transducer means aboard said buoy to sense the depth of said buoy below the surface of the water;

said control means generating command signals for said fin actuator means to cause said buoy to continuously seek a predetermined depth D below the surface of the sea; and fin motion sensor means for monitoring changes in fin position.

3. The system according to claim 1 further characterized by means for evaluating variations in fin position to provide indication of sea state parameters.

4. The system of claim 1 which further includes means for comparing any variations in buoy motion to reference motions for known sea conditions.

5. The system of claim 4 which further provides means for evaluating variations in buoy motion to provide indication of sea state parameters.

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6. The system according to claim 1 further characterized by cable tension measuring means, and means for comparing variations in cable tension to a reference tension value selected from a table of various tension values that vary according to sea state parameters.